

PATENT SPECIFICATION

(11) 1 476 195

1 476 195

- (21) Application No. 25431/74 (22) Filed 7 June 1974
 (31) Convention Application No. 67773
 (32) Filed 8 June 1973 in
 (33) Luxembourg (LU)
 (44) Complete Specification published 10 June 1977
 (51) INT CL³ C08L 91/06; A61K 7/021 (C08L 91/06, 31/02, 33/08, 33/10)



- (52) Index at acceptance
 C3P 4D3B3 4K6 4K7 6D3 6D4 6K4 7D2A2B 7D2A5 7K4
 8D2B2 8D5 8K8 E2 PC10 PC14A PC15 PC17
 PC20B PC20C PC20D1 PC20D2 PC2 PC3 PC5
 PC6A PC8B PC9

A5B 771

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(54) FATTY COMPOSITIONS FOR THE MANUFACTURE OF COSMETIC PRODUCTS

(71) We, L'OREAL, a French Body Corporate, of 14 Rue Royale, Paris, France, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to a new fatty composition for manufacturing cosmetic products and especially make-up products such as lip rouges in stick or paste form and mascaras. The present invention also relates to the cosmetic compositions in which the said fatty composition is present.

As is well known, cosmetic compositions such as lip rouge in stick or paste form or mascara consist mainly of a fatty base which is a mixture of one or more waxes and one or more oils.

The oils and waxes which can be used for the manufacture of such make-up compositions are of very diverse origin, and their choice depends primarily on the intended use of the compositions.

Hitherto, the use of certain waxes or oils of animal, vegetable or mineral origin, or of certain synthetic substances which have properties similar to those of the natural substances and which can consequently advantageously replace them, has been exclusively recommended.

Although commonly used in cosmetics, these waxes and these oils, whether they be of natural or synthetic origin, do not make it possible to impart to lip rouges in stick or paste form and to mascaras, properties which are wholly satisfactory, especially in relation firstly to the strength of the sticks and secondly to the gloss of the film deposited on the lips or on the eyelashes and

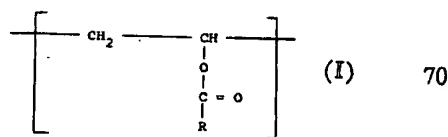
to the better adhesion of this film and to the way in which it lasts.

In fact, it is important firstly that lip rouges in stick form should be sufficiently strong so that, during application, the stick does not break or fracture, and secondly that lip rouges in paste form and mascaras should adhere well whilst being sufficiently glossy.

After extensive investigations, we have found, according to the present invention, that surprisingly, it is possible to manufacture excellent make-up products and especially lip rouges in stick or paste form and mascaras which possess the various properties mentioned above, if a composition containing a mixture of at least one cosmetic fatty constituent and at least one polymer of a particular type which has great affinity for the fatty constituent and which is non-toxic is used as the fatty base.

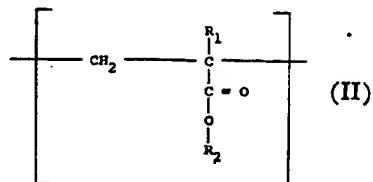
The present invention provides a fatty composition suitable for the manufacture of cosmetic products, which comprises a mixture of at least one cosmetic fatty constituent (as hereinafter defined) and at least one non-toxic, optionally cross-linked, homopolymer, said homopolymer being:

(a) a homopolymer having recurring units of the formula:



in which R represents a linear or branched saturated hydrocarbon radical with 6 to 19 carbon atoms,

or (b) a homopolymer having recurring units of the formula:



in which R₁ represents a hydrogen atom or a methyl radical and R₂ represents a linear or branched saturated hydrocarbon radical with 10 to 20 carbon atoms.

According to this invention, "fatty constituent" is to be understood as a wax or a mixture of waxes or a mixture of at least one wax and at least one oil. Preferably, the "fatty constituent" used according to the invention consists of 6 to 100% by weight of at least one wax and 0 to 94% by weight of at least one oil.

The presence in the fatty composition of at least one homopolymer as defined above makes it possible to impart great resistance to breaking to the make-up products in stick form, and ensures that the film deposited on the lips possesses good gloss and lasts well.

In the case of the compositions in paste form, and especially lip rouge or lip glosses, the presence of at least one homopolymer makes it possible to impart a good unctuous consistency and great suppleness to these compositions, and to ensure that the film deposited on the lips possesses good gloss and adheres well and that the gloss of the film lasts for a longer period.

In the case of compositions in the form of mascaras, the presence of a homopolymer also improves the adhesion of the film and increases the water-resistance of the film deposited on the eyelashes.

The homopolymers described above possess the characteristic of being fat-soluble, that is to say they have great affinity for the waxes and oils with which they are mixed. It is this very important property which makes it possible to impart good qualities to the cosmetic compositions manufactured from the fatty composition according to the invention.

The fat-solubility of the homopolymers is imparted by the presence, in the side-chains, of fatty chains with 6 to 20 carbon atoms and preferably 10 to 18 carbon atoms.

According to the invention, the fatty constituent is preferably present in a proportion of from 65 to 98%, particularly from 75 to 95%, and the homopolymer is preferably present in a proportion of from 2 to 35%, particularly from 5 to 25%, relative to the total weight of the fatty composition.

As stated above, the fatty constituent can consist of one or more waxes and in this case the latter can be, for example, ozokerite, lanolin, lanolin alcohol, hydrogenated lanolin,

acetylated lanolin, lanolin wax, beeswax, Candellila wax, microcrystalline wax, Carnauba wax, cetyl alcohol, stearyl alcohol, sphermaceti, cacao butter, lanolin fatty acids, petrolatum, vaselines ("VASELINE" is a Registered Trade Mark), mono-, di- and triglycerides which are solid at 25° C., fatty esters which are solid at 25° C., silicone waxes such as methyloctadecanoxypolysiloxane and poly - (dimethylsiloxy) - stearoxysiloxane, stearyl monoethanolamide, colophony and its derivatives such as glycol abietates and glycerol abietates, hydrogenated oils which are solid at 25° C., sucro-glycerides, and Ca, Mg, Zr and Al oleates, myristates, lanolates, stearates and dihydroxystearates.

The fatty constituent can also consist of a mixture of at least one wax and at least one oil, for example paraffin oil, Purcellin oil, perhydrosqualene, sweet almond oil, avocado oil, calophyllum oil, castor oil, caballine oil, lard oil, olive oil, mineral oils with a boiling point of 310° to 410° C., silicone oils such as dimethylpolysiloxanes, linoleyl alcohol, linolenyl alcohol, oleyl alcohol, cereal germ oil such as wheat-germ oil, isopropyl lanolate, isopropyl palmitate, isopropyl myristate, butyl myristate, cetyl myristate, hexadecyl stearate, butyl stearate, decyl oleate, acetyl glycerides, octanoates and decanoates of alcohols and polyalcohols like those of glycol and glycerol, ricinoleates of alcohols and polyalcohols such as cetyl ricinoleate, isostearyl alcohol, isocetyl lanolate, isopropyl adipate, hexyl lanolate and octyldodecanol.

It will, of course, be appreciated that the waxes and oils used must be suitable for use in cosmetics. Thus they must be of sufficient purity and be free from significant unwanted odour. In general, therefore, crude scale material cannot be used.

As indicated above, the polymers present in the fatty composition are homopolymers, that is to say they consist exclusively of a repetition of units of the formula (I) or (II).

The majority of the homopolymers used according to the present invention are known and have a molecular weight of from 2,000 to 500,000 and preferably from 6,000 to 300,000. Those which are not known can be prepared using conventional methods.

Amongst the homopolymers of the formula (I) which can be used in the fatty composition according to the invention, there may be mentioned, in particular, those resulting from the homopolymerisation of vinyl hexanoate, vinyl 2,2-dimethyl-pentanoate, vinyl octanoate, vinyl cecanoate, vinyl laurate, vinyl stearate or vinyl isostearate.

Amongst the homopolymers of the formula (II) which can be used in the fatty composition according to the invention, there may be mentioned, in particular, those resulting from the homopolymerisation of lauryl or

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stearyl acrylate or methacrylate.

According to the invention, the homopolymers can also be crosslinked by means of crosslinking agents, the purpose of which is essentially to increase their molecular weight.

This crosslinking can be carried out during the homopolymerisation and the crosslinking agents are chosen as a function of the nature of the monomer which is homopolymerised. Thus in the case of the vinyl esters which lead to units of the formula (I), a crosslinking agent selected from diallyl ether, tetraallyloxyethane, diallylamine, diallylmelamine, divinylbenzene, divinyl octanedioate, divinyl dodecanedioate, divinyl octadecanedioate and diallyl phthalate is preferably used.

In the case of the acrylate or methacrylate esters leading to units of the formula (II), a crosslinking agent selected from ethylene glycol diacrylate, ethylene glycol dimethacrylate, octane-1,8-diol diacrylate, octane-1,8-diol dimethacrylate, tetradecane-1,14-diol diacrylate, tetradecane-1,14-diol dimethacrylate, octadecane-1,18-diol diacrylate, octadecane-1,18-diol dimethacrylate and tetraethylene glycol dimethacrylate is preferably used.

According to a particular embodiment, the following homopolymers are preferably used: polyvinyl stearate, polyvinyl stearate crosslinked with divinylbenzene or diallyl ether, polyvinyl laurate, polyvinyl cecanoate, polystearyl methacrylate, polystearyl methacrylate crosslinked with ethylene glycol dimethacrylate, polyvinyl 2,2-dimethyl-pentanoate or polylauryl methacrylate.

Whether or not they are crosslinked, the homopolymers which can be used according to the invention can be prepared in accordance with conventional methods, that is to say by polymerisation in bulk, in suspension, in solution or in emulsion.

The polymerisation is preferably carried out in solution in an organic solvent or in suspension in water.

As the initiator, it is possible to use, for example, benzoyl peroxide, lauroyl peroxide or azo-bis-isobutyronitrile.

The polymerisation temperature is generally from 50° to 130° C.

The present invention also provides a solid or semi-solid composition suitable for use as a cosmetic which contains a fatty composition of this invention.

According to the invention, the proportion of fatty composition in the cosmetic compositions is generally from 99.5% to 15% by weight relative to the total weight of the cosmetic composition, it being understood that the proportion of homopolymer relative to the total weight of the cosmetic composition is not less than 1.5% by weight.

These compositions according to the invention can be either in the form of, for example, lip rouges in stick or paste form, or mascaras.

When the compositions according to the invention are in the form of sticks, they can be either lip rouges or lip glosses. The difference between these two embodiments resides in the fact that lip glosses do not contain, or contain only a very small proportion of, dyestuffs which serve solely to dye the stick but do not allow a colouration to be imparted to the lips.

In this particular embodiment, the fatty composition according to the invention is preferably present in a proportion of from 75 to 99.5 (%) relative to the total weight of the stick.

The various ingredients which can be introduced into these sticks are those conventionally used for this type of formulation. Amongst these ingredients, there may be mentioned, in particular, soluble or insoluble dyestuffs which are generally present in a proportion of from 6 to 15%, solvents for certain dyestuffs which are insoluble in the fatty constituents and especially eosin derivatives, agents which impart a pearly lustre, present in a proportion of, for example, 2 to 20%, perfumes, anti-sunburn agents, anti-oxidants and preservatives.

Amongst the various dyestuffs for lip rouges, there may be mentioned in particular eosins and other halogenated derivatives of fluorescein (bromo-acids) and especially those known by the names of D and C Red No. 21, D and R Red No. 27, D and C Orange No. 5, inorganic pigments such as iron oxides and chromium oxides, ultramarines (polyaminosilicate sulphides) and titanium dioxide, these compounds being used at a concentration of, for example, 1 to 6%, and organic pigments such as D and C Red No. 36 and D and C Orange No. 17.

Finally, it is also possible to include lacquers in the dyestuffs such as calcium lacquers of D and C Red No. 7, 21 and 27, barium lacquers of D and C Red No. 6 and 9, Al lacquers of D and C Red No. 21 and D and C Yellow No. 5 and 6, and zirconium lacquers of D and C Red No. 21 and D and C Orange No. 5.

Amongst the solvents for dyestuffs which are insoluble in oils, there may be mentioned glycols, tetrahydrofurfuryl esters, polyethylene glycols and monoalkanolamides.

Amongst the agents which impart a pearly lustre, there may be mentioned in particular bismuth oxychloride, mica-titanium and guanine crystals.

Amongst the anti-oxidants, there may be mentioned in particular those of the phenolic type such as propyl, octyl and dodecyl esters of gallic acid, butylated hydroxy-anisole, butylated hydroxy-toluene and nordihydroguaiaretic acid.

When the compositions are in the form of pastes, they can also be lip rouges or lip glosses and thus contain the same in-

redients as the sticks. In this embodiment, the fatty composition is present in a proportion identical to that of the sticks.

5 However, in the latter case, the proportion of wax is lower and it is preferable not to exceed 85% of wax relative to the total weight of the fatty composition.

10 These compositions are preferably anhydrous whether they are in the form of sticks of pastes, but in certain cases they can contain some amounts of water generally not exceeding 8 to 10% relative to the total weight of the cosmetic composition.

15 When the cosmetic compositions according to the invention are in the form of mascaras, the latter are in the semi-solid form and can be either anhydrous or aqueous.

20 In this particular embodiment, the proportion of fatty composition according to the invention is preferably from 15 to 40% relative to the total weight of the mascara.

25 When the mascaras are anhydrous, they contain, in addition to the fatty composition, a volatile product in a proportion which is generally from 35 to 50% relative to the total weight of the mascara. Amongst the volatile compounds, there may be mentioned in particular iso-paraffin, oil of turpentine, isopropyl alcohol, ethyl alcohol and white spirit.

30 On the other hand, when the mascaras are aqueous (in this case they are then more particularly emulsions of the oil-in-water type), they preferably contain 50 to 70% by weight of water relative to the total weight of the mascara, 8 to 20% of an emulsifier such as amino-propanediol stearate or oleate or oleostearate, morpholine stearate or oleate or oleostearate, mono-, di- or tri-ethanolamine stearate or oleate or oleostearate, mono-, di- or tri-isopropanolamine stearate or oleate or oleostearate, or polyoxyethyleneated or polyglycerolated fatty ethers or esters, and a substance for improving the adhesion and the flow of the mascara such as, for example, 45 cellulose derivatives like hydroxycellulose or gum arabic.

50 Whether the mascaras are anhydrous or aqueous, they also contain dyestuffs and more particularly certain pigments such as carbon black or black iron oxide, chromium oxides or yellow and red iron oxides or certain metal powders such as those of silver or aluminium.

55 The mascaras according to the invention can also contain other conventional ingredients such as perfumes, anti-oxidants and preservatives.

60 As indicated above, the compositions should not contain an amount of homopolymer less than 1.5% by weight relative to the total weight of these types of compositions.

65 As far as the upper concentration of homopolymer in the cosmetic compositions is concerned, this is a function of the ratios of the fatty composition and can be approximately 35% and preferably approximately 25% in

the case of sticks and pastes and approximately 15% and preferably approximately 10% in the case of mascaras.

70 The following Examples further illustrate the present invention; Examples 1 to 11 illustrate the preparation of the homopolymers.

EXAMPLES OF THE PREPARATION OF HOMOPOLYMERS.

EXAMPLE 1.

75 *Preparation of a polyvinyl stearate in solution.*

100 g of vinyl stearate, 43 g of acetone and 0.5 g of benzoyl peroxide (Bz_2O_2) are introduced into a 500 ml flask equipped with a mechanical stirrer, a nitrogen inlet tube and a condenser. The solution is heated under reflux for 24 hours and then 200 g of acetone, heated beforehand to 40° C., are added thereto. The solution is then cooled slowly, with vigorous stirring, and the polymer then precipitates in the form of a white powder. 80

Viscosity: 0.97 cps (5% strength solution in toluene at 34.6° C.) 85

$\bar{M}_n = 34,000$ (osmometry in toluene)

EXAMPLE 2.

90 *Preparation of a polyvinyl stearate in suspension.*

300 g of an aqueous solution containing 1.8 g of "Cellosize" (Registered Trade Mark) and 1.5 g of benzoyl peroxide (Bz_2O_2) dissolved in 50 g of vinyl stearate are introduced into a one litre flask equipped with a mechanical stirrer, a nitrogen inlet and a condenser. 95

The solution is heated at 80° C., with stirring, for 8 hours and, after cooling, the polymer is recovered in the form of beads. 100

$\bar{M}_n = 34,000$

$\bar{M}_w = 95,000$

$\frac{dn}{dc} = 0.076$ (THF)

EXAMPLE 3.

105 *Preparation of a polyvinyl stearate crosslinked with divinylbenzene.*

100 g of vinyl stearate, 100 g of acetone, 0.6 g of divinylbenzene and 4 g of benzoyl peroxide (Bz_2O_2) are introduced into a one litre flask equipped with a stirrer, a nitrogen inlet and a condenser. 110

The solution is heated under reflux for 24 hours, with stirring, then 500 g of acetone, heated beforehand to 40° C., are added thereto and the solution is cooled slowly, with vigorous stirring. The polymer then precipitates in the form of a white powder. 115

Viscosity: 0.83 cps (5% strength solution in toluene at 34.6° C.). 120

vinyl stearate is polymerised under the following conditions: 20

Vinyl stearate: 62.5 g
Acetone: 37.5 g
Divinylbenzene: 0.2 g
Benzoyl peroxide: 2.5 g

The desired polymer is thus obtained in the form of a white powder. 25
Viscosity: 0.92 cps (5% strength solution in toluene at 34.6° C.).

EXAMPLES 6 to 11. 30
Following a similar procedure, other homopolymers were prepared. The latter are given in Table A below.

EXAMPLE 4.
Preparation of a polyvinyl stearate crosslinked with diallyl ether.

Following the procedure as given in Example 3, vinyl stearate is polymerised under the following conditions:

Vinyl stearate: 100 g
Acetone: 60 g
Diallyl ether: 0.2 g
Benzoyl peroxide: 2.5 g

The desired homopolymer is thus obtained in the form of a white powder.
Viscosity: 0.94 cps (5% strength solution in toluene at 34.6° C.).

EXAMPLE 5.
Preparation of a polyvinyl stearate crosslinked with divinylbenzene.

Following the procedure of Example 3,

Preparation Examples—TABLE A

| Example | Homopolymer prepared | Polymerisation solvent | Monomer/solvent ratio | Nature and % of the catalyst | Precipitating agent (c) | Iodine number (d) | Viscosity (cp) (a) |
|---------|---|------------------------|-----------------------|-----------------------------------|-------------------------|-------------------|--------------------|
| 6 | Polyvinyl laurate | Acetone | 1:1 | Bz ₂ O ₂ 6% | Methanol | 0.68 | 0.85 |
| 7 | Polyvinyl cecanoate (e) | Acetone | 1:1 | Bz ₂ O ₂ 4% | Methanol | 0.9 | 0.84 |
| 8 | Polystearyl methacrylate | Toluene | 1:1 | Bz ₂ O ₂ 4% | Methanol | 1.68 | 2.58 |
| 9 | Polystearyl methacrylate crosslinked with 0.02% of ethylene glycol dimethacrylate | Toluene | 1:1 | Bz ₂ O ₂ 4% | Methanol | 0.42 | 2.41 |
| 10 | Polyvinyl 2,2-dimethyl pentanoate | Acetone | 1:1 | Bz ₂ O ₂ 4% | Water | 1.0 | 0.91 (b) |
| 11 | Polylauryl methacrylate | Acetone | 1:1 | Bz ₂ O ₂ 4% | Methanol | 0 | 3.58 |

Notes:

All the homopolymers of Examples 6 to 11 were prepared by heating at 80° C. for 24 hours.

- 5 (a): The viscosities were measured using a 5% strength solution in toluene at 34.6° C.
- (b): The viscosity for this homopolymer was measured using a 5% strength solution in chloroform at 34.6° C.
- 10 (c): After the end of polymerisation, the mixture is poured into one of the solvents indicated in order to precipitate the polymer.
- 15 (d): This number was measured after drying under reduced pressure at 60° C.
- (e): Vinyl ester of cecanoic acid, a branched acid containing an average of 10 carbon atoms (sold by Messrs. KULHMANN).
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EXAMPLES OF COMPOSITIONS ACCORDING TO THE INVENTION.

Preparations of lip rouges in stick form.

EXAMPLE I.

- 25 A lip rouge in stick form having the following composition is prepared according to the invention:

| | |
|---|--------|
| fatty composition A | 89.9 g |
| anti-oxidant (butylated hydroxy-toluene) | 0.1 g |
| anti-sunburn agent (trimethylbenzylidene-heptanone) | 1 g |
| perfume | 1 g |
| dyestuffs: | |
| titanium oxide | 4.5 g |
| D and C Red No. 36 | 1 g |
| Al lacquer of F.D.C. Yellow 6 | 1 g |
| Al lacquer of D and C Red No. 27 | 1.5 g |

- 40 The fatty composition A results from mixing the following ingredients:

| | |
|------------------------------------|------|
| ozokerite | 16 g |
| lanolin | 28 g |
| oleyl alcohol | 10 g |
| cetyl ricinoleate | 20 g |
| 45 octanoic acid triglycerides | 20 g |
| wheatgerm oil | 1 g |
| homopolymer according to Example 1 | 5 g |

EXAMPLE II.

- 50 A pearly lip rouge in stick form having the following composition is prepared according to the invention:

| | |
|--|--------|
| fatty composition B | 79.9 g |
| anti-oxidant (butylated hydroxy-toluene) | 0.1 g |
| 55 anti-sunburn agent (trimethylbenzylidene-heptanone) | 1 g |
| dyestuffs: | |
| titanium oxide | 1 g |

| | | |
|----------------------------------|-------|----|
| Al lacquer of D and C Red No. 27 | 1.5 g | |
| black iron oxide | 1 g | 60 |
| yellow iron oxide | 0.5 g | |
| mica-titanium | 15 g | |

The fatty composition B results from mixing the following ingredients:

| | | |
|------------------------------------|------|----|
| Candellila wax | 9 g | 65 |
| microcrystalline wax | 4 g | |
| mineral oil | 13 g | |
| cetyl ricinoleate | 15 g | |
| lanolin | 15 g | |
| liquid lanolin | 25 g | 70 |
| isopropyl lanolate | 14 g | |
| homopolymer according to Example 2 | 5 g | |

EXAMPLE III.

- A transparent lip gloss in stick form having the following composition is prepared according to the invention:
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| | | |
|--|--------|----|
| fatty composition C | 96.9 g | |
| anti - oxidant (butylated hydroxy-anisole) | 0.1 g | |
| perfume | 1 g | 80 |
| dyestuffs: | | |
| Zr lacquer of D and C Red No. 21 | 0.5 g | |
| D and C Red No. 36 | 1 g | |
| Al lacquer of F.D.C. Yellow No. 5 | 0.5 g | |

- The fatty composition C results from mixing the following ingredients:
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| | | |
|------------------------------------|--------|----|
| Following ingredients: | | |
| ozokerite | 12.5 g | |
| Carnauba wax | 2 g | |
| Candellila wax | 2 g | |
| hydrogenated lanolin | 5 g | 90 |
| castor oil | 38.5 g | |
| oleyl alcohol | 15 g | |
| isopropyl lanolate | 10 g | |
| liquid lanolin | 5 g | |
| homopolymer according to Example 1 | 10 g | 95 |

EXAMPLE IV.

- A lip rouge in stick form having the following composition is prepared according to the invention:

| | | |
|---|--------|-----|
| fatty composition D | 89.8 g | 100 |
| anti-oxidant (butylated hydroxy-toluene) | 0.1 g | |
| anti-sunburn agent (trimethylbenzylidene-heptanone) | 1 g | |
| perfume | 1 g | 105 |
| dyestuffs: | | |
| titanium oxide | 2.2 g | |
| Al lacquer of D and C Red No. 27 | 3.6 g | |
| black iron oxide | 0.4 g | |
| D and C Red No. 36 | 0.9 g | 110 |
| Al lacquer of D and C Yellow No. 6 | 1 g | |

The fatty composition D results from mixing the following ingredients:

| | | | | | |
|---|------------------------------------|------|------------------------------------|-------|----|
| | microcrystalline wax | 9 g | Al lacquer of D and C Yellow No. 6 | 2.7 g | |
| | lanolin | 30 g | yellow iron oxide | 1.4 g | |
| | oleyl alcohol | 9 g | D and C Red No. 6 | 3.1 g | 60 |
| | cetyl ricinoleate | 20 g | mica-titanium | 15 g | |
| 5 | octanoic acid triglycerides | 16 g | | | |
| | isopropyl lanolate | 10 g | | | |
| | wheatgerm oil | 1 g | | | |
| | homopolymer according to Example 6 | 5 g | | | |

The fatty composition E results from mixing the following ingredients:

EXAMPLE V.

10 A lip rouge in stick form having the following composition is prepared according to the invention:

| | | |
|----|--|--------|
| | fatty composition D' | 82.5 g |
| | anti-oxidant (butylated hydroxy-toluene) | 0.1 g |
| 15 | perfume | 1 g |
| | titanium oxide | 1.8 g |
| | D and C Orange No. 5 | 0.3 g |
| 20 | Al lacquer of D and C Yellow No. 6 | 8.8 g |
| | D and C Red No. 6 | 5.5 g |

25 The fatty composition D' is identical to the fatty composition D with the exception of the fact that the 5 g of homopolymer according to Example 6 were replaced by the same amount of the homopolymer according to Example 7.

EXAMPLE VI.

30 A pearly lip rouge in stick form having the following composition is prepared according to the invention:

| | | |
|----|--|---------|
| | composition D'' | 78.85 g |
| | anti-oxidant (butylated hydroxy-toluene) | 0.1 g |
| | perfume | 1 g |
| 35 | zirconium lacquer of D and C Red No. 21 | 0.8 g |
| | black iron oxide | 0.05 g |
| | D and C Orange No. 5 | 0.2 g |
| | D and C Red No. 36 | 0.8 g |
| 40 | Lacquer of D and C Yellow No. 6 | 3.2 g |
| | mica-titanium | 15 g |

45 The fatty composition D'' is identical to the fatty composition D with the exception of the fact that the 5 g of homopolymer according to Example 6 were replaced by the same amount of the homopolymer according to Example 11.

EXAMPLE VII.

50 A pearly lip rouge in stick form having the following composition is prepared according to the invention:

| | | |
|----|--|--------|
| | fatty composition E | 76.1 g |
| | anti-oxidant (butylated hydroxy-toluene) | 0.1 g |
| 55 | perfume | 1 g |
| | black iron oxide | 0.4 g |
| | D and C Orange No. 5 | 0.2 g |

| | | | |
|--|------------------------------------|------|----|
| | ozokerite | 18 g | |
| | lanolin | 15 g | 65 |
| | oleyl alcohol | 11 g | |
| | cetyl ricinoleate | 10 g | |
| | octanoic acid triglycerides | 15 g | |
| | isopropyl lanolate | 10 g | |
| | wheatgerm oil | 1 g | 70 |
| | homopolymer according to Example 8 | 20 g | |

Lip glosses in paste form.

EXAMPLE VIII.

A lip gloss in paste form having the following composition is prepared according to the invention:

| | | | |
|--|-----------------------------------|--------|----|
| | fatty composition F | 97.9 g | |
| | anti-oxidant | 0.1 g | |
| | perfume | 1 g | |
| | dyestuffs: | | 80 |
| | titanium oxide | 0.2 g | |
| | Zr lacquer of D and C Red No. 21 | 0.3 g | |
| | Al lacquer of F.D.C. Yellow No. 6 | 0.2 g | |
| | D and C Red No. 36 | 0.3 g | |

The fatty composition F results from mixing the following ingredients:

| | | | |
|--|------------------------------------|------|----|
| | lanolin | 35 g | |
| | liquid lanolin | 35 g | |
| | vaseline | 15 g | |
| | mineral oil | 9 g | 90 |
| | microcrystalline wax | 1 g | |
| | homopolymer according to Example 5 | 5 g | |

EXAMPLE IX.

A pearly lip gloss in paste form having the following composition is prepared according to the invention:

| | | | |
|--|--|--------|-----|
| | fatty composition G | 80.9 g | |
| | anti-oxidant (butylated hydroxy-anisole) | 0.1 g | |
| | perfume | 1 g | 100 |
| | dyestuffs: | | |
| | Al lacquer of D and C Red No. 27 | 0.5 g | |
| | D and C Red No. 36 | 0.5 g | |
| | Al lacquer of F.D.C. Yellow No. 5 | 0.5 g | |
| | Bi oxychloride | 16.5 g | 105 |

The fatty composition G results from mixing the following ingredients:

| | | | |
|--|-------------------|------|-----|
| | lanolin | 35 g | |
| | lanolin wax | 5 g | |
| | oleyl alcohol | 16 g | 110 |
| | cetyl ricinoleate | 10 g | |

mineral oil 3 g
 castor oil 25 g
 homopolymer according to Example 3 6 g

EXAMPLE X.

5 A lip gloss in paste form having the following composition is prepared according to the invention:

fatty composition H 97.04 g
 anti-oxidant (butylated hydroxy-toluene) 0.1 g
 10 perfume 1 g
 zirconium lacquer of D and C Red No. 21 0.4 g
 calcium lacquer of D and C Red No. 7 0.12 g
 15 black iron oxide 0.14 g
 Al lacquer of D and C Yellow No. 6 1.2 g

The fatty composition H results from mixing the following ingredients:

20 microcrystalline wax 2.5 g
 ozokerite 3.5 g
 lanolin 15 g
 liquid lanolin 30 g
 mineral oil 30 g
 25 cationic bentonite 4 g
 homopolymer according to Example 9 15 g

EXAMPLE XI.

30 A slightly pearly lip gloss in paste form having the following composition is prepared according to the invention:

fatty composition I 93.95 g
 anti-oxidant (butylated hydroxy-toluene) 0.1 g
 perfume 1 g
 35 D and C Red No. 21 0.05 g
 zirconium lacquer of D and C Red No. 21 0.2 g
 calcium lacquer of D and C Red No. 7 0.2 g
 40 aluminium lacquer of D and C Yellow No. 6 0.5 g
 mica-titanium 4 g

The composition I results from mixing the following ingredients:

45 microcrystalline wax 1.5 g
 ozokerite 2 g
 liquid lanolin 28 g
 mineral oil 16 g
 lanolin 20 g
 50 solidified mineral oil 15 g
 cationic bentonite 7.5 g
 homopolymer according to Example 8 10 g

EXAMPLE XII.

55 A lip gloss in paste form having the follow-

ing composition is prepared according to the invention:

fatty composition J 93.5 g
 anti-oxidant (butylated hydroxy-toluene) 0.1 g
 60 perfume 1 g
 titanium oxide 0.2 g
 zirconium lacquer of D and C Red No. 21 2.9 g
 black iron oxide 0.2 g
 65 D and C Orange No. 5 0.2 g
 D and C Red No. 36 0.8 g
 yellow iron oxide 1.1 g

The fatty composition J results from mixing the following ingredients:

liquid lanolin 35 g
 lanolin 35 g
 vaseline 10 g
 homopolymer according to Example 11 20 g
 75

Lip rouges in paste form.

EXAMPLE XIII.

A lip rouge in paste form for an application device, having the following composition, is prepared according to the invention: 80

fatty composition K 85.9 g
 anti-oxidant (butylated hydroxy-toluene) 0.1 g
 cationic bentonite 5 g
 perfume 1 g
 85 dyestuffs:
 titanium oxide 1 g
 Al lacquer of D and C Red No. 27 3 g
 Ca lacquer of D and C Red No. 7 4 g

The fatty composition K results from mixing the following ingredients:

lanolin 20 g
 isopropyl lanolate 20 g
 mineral oil 5 g
 95 oleyl alcohol 10 g
 hydrogenated lanolin 10 g
 cetyl ricinoleate 10 g
 castor oil 20 g
 homopolymer according to Example 4 5 g

EXAMPLE XIV.

100 A lip rouge in paste form having the following composition is prepared according to the invention:

fatty composition L 78.9 g
 anti-oxidant (butylated hydroxy-toluene) 0.1 g
 perfume 1 g
 105 cationic bentonite 4 g

dyestuffs:

| | | |
|---|---------------------------------|-------|
| | Ca lacquer of D and C Red No. 7 | 1.5 g |
| | D and C Red No. 30 | 3 g |
| | Al lacquer of F.D.C. Red No. 5 | 1.5 g |
| 5 | mica-titanium | 10 g |

The fatty composition L results from mixing the following ingredients:

| | | |
|----|------------------------------------|------|
| | microcrystalline wax | 1 g |
| 10 | Candellila wax | 2 g |
| | lanolin wax | 5 g |
| | castor oil | 10 g |
| | cetyl ricinoleate | 10 g |
| | mineral oil | 30 g |
| 15 | isopropyl lanolate | 17 g |
| | decanoic acid triglycerides | 18 g |
| | homopolymer according to Example 1 | 7 g |

20 In this fatty composition L, the 5 grams of the homopolymer according to Example 1 can advantageously be replaced by the same amount of one of the homopolymers prepared according to Examples 6, 7, 10 and 11.

Mascaras in semi-solid form.

EXAMPLE XV.

25 An automatic mascara of the "MASCARA MATIC" (Trade Mark) type having the following composition is prepared according to the invention:

| | | |
|----|-------------------------------|--------|
| | fatty composition M | 18 g |
| 30 | aminopropanediol oleostearate | 12 g |
| | hydroxy-cellulose | 1 g |
| | demineralised water | 58.8 g |
| | black iron oxide | 10 g |
| | methyl para-hydroxy-benzoate | 0.2 g |

35 The fatty composition M results from mixing the following ingredients:

| | | |
|--|------------------------------------|------|
| | Carnauba wax | 99 g |
| | homopolymer according to Example 1 | 11 g |

40 In this fatty composition M, the 11 grams of homopolymer according to Example 1 can advantageously be replaced by the same amount of the homopolymer prepared according to Example 2.

EXAMPLE XVI.

45 An automatic mascara of the "MASCARA MATIC" type having the following composition is prepared according to the invention:

| | | |
|----|-------------------------------|--------|
| | fatty composition N | 18 g |
| | aminopropanediol oleostearate | 12 g |
| 50 | hydroxyethyl-cellulose | 1 g |
| | demineralised water | 58.8 g |
| | yellow iron oxide | 6 g |
| | black iron oxide | 4 g |
| | methyl para-hydroxy-benzoate | 0.2 g |

The fatty composition N results from mixing the following ingredients:

| | | |
|--|------------------------------------|------|
| | Carnauba wax | 89 g |
| | homopolymer according to Example 4 | 11 g |

EXAMPLE XVII.

A mascara having the following composition is prepared according to the invention:

| | | |
|----|-------------------------------|--------|
| | fatty composition O | 18 g |
| | aminopropanediol oleostearate | 12 g |
| | hydroxy-cellulose | 1 g |
| 65 | demineralised water | 58.8 g |
| | polyaminosilicate sulphide | 8 g |
| | black iron oxide | 2 g |
| | methyl para-hydroxy-benzoate | 0.2 g |

70 The fatty composition O results from mixing the following ingredients:

| | | |
|--|------------------------------------|------|
| | Carnauba wax | 89 g |
| | homopolymer according to Example 3 | 11 g |

75 In this fatty composition O, the 11 grams of homopolymer prepared according to Example 3 can advantageously be replaced by the same amount of the homopolymer prepared according to Example 5.

EXAMPLE XVIII.

80 An anhydrous mascara is prepared according to the invention by making up a mixture of the following ingredients:

| | | |
|----|------------------------------|--------|
| | fatty composition P | 39 g |
| | iso-paraffin | 56.8 g |
| | black iron oxide | 4 g |
| | methyl para-hydroxy-benzoate | 0.2 g |
| 85 | | |

The fatty composition P results from mixing the following ingredients:

| | | |
|----|------------------------------------|--------|
| | beeswax | 62.5 g |
| | lanolin alcohol | 12.5 g |
| | acetylated lanolin | 10 g |
| | homopolymer according to Example 1 | 15 g |
| 90 | | |

95 In this fatty composition P, the 15 grams of homopolymer according to Example 1 can be replaced by the same amount of one of the homopolymers prepared according to Examples 8, 9 and 11.

EXAMPLE XIX.

100 An anhydrous mascara is prepared according to the invention by making up a mixture of the following ingredients:

| | | |
|-----|---------------------|--------|
| | fatty composition Q | 39 g |
| | iso-paraffin | 56.8 g |
| 105 | | |

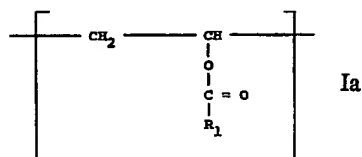
black iron oxide 4 g
methyl para-hydroxy-benzoate 0.2 g

The fatty composition Q results from mixing the following ingredients:

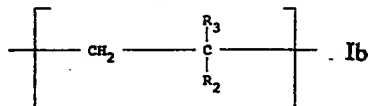
5 beeswax 62.5 g
lanolin alcohol 12.5 g
acetylated lanolin 10 g
homopolymer according to Example 3 15 g

10 In this fatty composition Q, the 15 grams of homopolymer according to Example 3 can be replaced by the same amount of one of the homopolymers prepared according to Examples 6, 7 and 10.

15 In our copending Application No. 25429/74 (Specification No.), we describe and claim a fatty composition suitable for the manufacture of cosmetic products, which comprises a mixture of at least one cosmetic fatty constituent (as hereinbefore defined) and at least one non-toxic, optionally cross-linked, copolymer having recurring units of the following formulae:



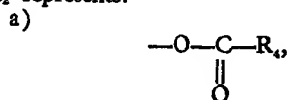
25 and



in which:

R_1 represents a linear or branched saturated hydrocarbon radical with up to 19 carbon atoms,

30 R_2 represents:

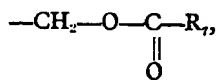


35 wherein R_4 is as defined under R_1 , but is different from R_1 ,

b) $\text{—CH}_2\text{—R}_5$, wherein R_5 represents a linear or branched saturated hydrocarbon radical with 5 to 25 carbon atoms,

40 c) —O—R_6 , wherein R_6 represents a saturated hydrocarbon radical with 2 to 18 carbon atoms, or

d)



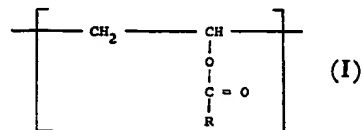
wherein R_7 represents a linear or branched saturated hydrocarbon radical with up to 19 carbon atoms,

45 and R_3 represents a hydrogen atom when R_2 represents a radical as defined under a), b) or c), or R_3 represents a hydrogen atom or a methyl radical when R_2 represents a radical as defined under d), with the proviso that at least 15% by weight of the copolymer consists of a monomer of formula (Ia) or (Ib) which contains a linear or branched saturated hydrocarbon radical of at least 7 carbon atoms.

WHAT WE CLAIM IS:—

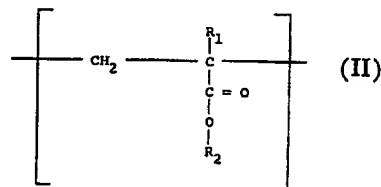
1. A fatty composition suitable for the manufacture of cosmetic products, which comprises a mixture of at least one cosmetic fatty constituent (as hereinbefore defined) and at least one non-toxic, optionally crosslinked, homopolymer, said homopolymer being:

(a) a homopolymer having recurring units of the formula:



in which R represents a linear or branched saturated hydrocarbon radical with 6 to 19 carbon atoms, or

(b) a homopolymer having recurring units of the formula:



in which R_1 represents a hydrogen atom or a methyl radical and R_2 represents a linear or branched saturated hydrocarbon radical with 10 to 20 carbon atoms.

2. A composition according to claim 1, in which the cosmetic fatty constituent is present in an amount from 65 to 98%, and the homopolymer is present in an amount from 35 to 2%, by weight, based on the total weight of the composition.

3. A composition according to claim 2 in which the cosmetic fatty constituent is present in an amount from 75 to 95% by weight, based on the total weight of the composition.

4. A composition according to any one of claims 1 to 3 in which the cosmetic fatty constituent consists of 6 to 100% by weight of at least one wax and 0 to 94% by weight of at least one oil.

5. A composition according to claim 4 in

- which the wax is at least one of ozokerite, lanolin, lanolin alcohol, hydrogenated lanolin, acetylated lanolin, lanolin wax, beeswax, Candelilla wax, microcrystalline wax, Carnauba wax, cetyl alcohol, stearyl alcohol, spermaceti, cacao butter, a lanolin fatty acid, petrolatum, a mono, di- or tri-glyceride which is solid at 25° C., a fatty ester which is solid at 25° C., a silicone wax, stearyl monoethanol-
 5 amide, colophony, a glycol abietate, a glycerol abietate, a hydrogenated oil which is solid at 25° C., a sucro-glyceride, or a Ca, Mg, Zr or Al oleate, myristate, lanolate, stearate or dihydroxy-stearate.
6. A composition according to claim 4 or 5 in which the oil is at least one of paraffin oil, Purcellin oil, perhydrosqualene, sweet almond oil, avocado oil, calophyllum oil, castor oil, caballine oil, lard oil, olive oil, a mineral oil with a boiling point of 310°
 10 to 410° C., a silicone oil, linoleyl alcohol, linolenyl alcohol, oleyl alcohol, cereal germ oil, isopropyl lanolate, isopropyl palmitate, isopropyl myristate, butyl myristate, cetyl myristate, hexadecyl stearate, butyl stearate, decyl oleate, an acetyl-glyceride, an octanoate or decanoate of an alcohol or polyalcohol, a ricinoleate of an alcohol or polyalcohol, isostearyl alcohol, isocetyl lanolate, isopropyl adipate, hexyl lanolate or octyldodecanol.
7. A composition according to any one of the preceding claims in which the homopolymer is of formula (I) and has recurring units derived from vinyl hexanoate, vinyl 2,2-dimethyl-pentanoate, vinyl octanoate, vinyl
 15 cecanoate, vinyl laurate, vinyl stearate or vinyl isostearate.
8. A composition according to any one of claims 1 to 6 in which the homopolymer is of formula (II).
9. A composition according to claim 8 in which the homopolymer is of formula (II) and has recurring units derived from lauryl or stearyl acrylate or methacrylate.
10. A composition according to any one of the preceding claims in which the homopolymer is crosslinked.
11. A composition according to claim 10 in which the homopolymers is of formula (I) and is crosslinked by diallyl ether, tetraallyl-
 20 oxyethane, diallylamine, diallylmelamine, divinylbenzene, divinyl octanedioate, divinyl dodecanedioate, divinyl octadecanedioate or diallyl phthalate.
12. A composition according to claim 10 in which the homopolymer is of formula (II) and is crosslinked by ethylene glycol diacrylate, ethylene glycol dimethacrylate, octane-1,8-diol diacrylate, octane-1,8-diol dimethacrylate, tetradecane-1,14-diol diacrylate, tetradecane-1,14-diol dimethacrylate, octadecane-1,18-diol diacrylate, octadecane-1,18-diol dimethacrylate or tetraethylene glycol dimethacrylate.
13. A composition according to any one of the preceding claims in which the homopolymer has a molecular weight of from 2,000 to 500,000.
14. A composition according to claim 13 in which the homopolymer has a molecular weight from 6,000 to 300,000.
15. A composition according to claim 1 substantially as hereinbefore described.
16. A solid or semi-solid composition suitable for use as a cosmetic which comprises a fatty composition as claimed in any one of claims 1 to 14.
17. A composition according to claim 16 in which the fatty composition is present in an amount from 99.5% to 15% by weight based on the total weight of the cosmetic composition, the homopolymer being present in an amount of at least 1.5% by weight based on the total weight of the cosmetic composition.
18. A composition according to claim 16 or 17 which is in the form of a stick and contains from 75 to 99.5% by weight based on the total weight of the cosmetic composition of the fatty composition.
19. A composition according to claim 16 or 17 which is in the form of a paste and contains from 75 to 99.5% by weight based on the weight of the cosmetic composition of the fatty composition, the amount of wax in the fatty composition not exceeding 85% by weight based on the total weight of the fatty composition.
20. A composition according to any one of claims 16 to 19 which is anhydrous.
21. A composition according to any one of claims 16 to 19 which contains up to 10% by weight of water, based on the total weight of the cosmetic composition.
22. A composition according to claim 16 or 17 which is in the form of a semi-solid mascara and contains from 15 to 40% by weight based on the total weight of the cosmetic composition, of the fatty composition.
23. A composition according to claim 22 which is anhydrous and contains 35 to 50% by weight of a volatile product based on the total weight of the cosmetic composition.
24. A composition according to claim 22 which contains 50 to 70% by weight of water and 8 to 20% by weight of an emulsifier, based on the total weight of the cosmetic composition.
25. A composition according to any one of claims 16 to 24 which also contains at least one of a dyestuff which is soluble or insoluble in the continuous medium, an agent for imparting a pearly lustre, a perfume, an anti-sunburn agent, an anti-oxidant and a preservative.
26. A composition according to claim 16 substantially as hereinbefore described.
27. A composition according to claim 16 substantially as described in any one of Ex-

amples I to III, VIII, IX, XIII and XV
to XIX.

28. A composition according to claim 16
substantially as described in any one of Ex-
5 amples IV to VII, X to XII and XIV.

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Printed for Her Majesty's Stationery Office by the Courier Press, Leamington Spa, 1977.
Published by the Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from
which copies may be obtained.